REMARKS

Claims 1-17, 22-25, 28 and 29 have been pending in the application, of which Claims 22-25, 28 and 29 have been previously withdrawn. Claims 1-17 have been rejected. This rejection is respectfully traversed and reconsideration is requested. To further the prosecution of this application, the Applicants are canceling independent Claim 4.

New Claims 30-32 are added by this Amendment. These claims depend on currently pending independent Claim 2. No new matter has been added. All claims are now believed to be in condition for allowance.

Claim Objections

The Examiner has objected to Claim 10 because of a typographical error. This error has been corrected and Claim 10 has been rewritten in independent form. All claims should now be in condition for allowance.

Claim Rejections under 35 U.S.C. § 103

Claims 2, 3, 5-10, and 12-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Goldfine (U.S. patent No. 5,453,689) in view of Zaretsky, "Continuum Properties from Interdigital Electrode Dielectrometry." This rejection is respectfully traversed and reconsideration is requested.

The present application is directed towards the use of measurement grids and inversion methods for converting the responses from dielectric sensors into physical properties. Responses from multiple sensors can be plotted together to create an estimation grid. Such responses can also be taken from different sense elements within a single sensor footprint that respond to different penetration depths or different spatial wavelengths.

Aspects of this invention are similar to the approach used with magnetometers in Goldfine; however, there are important distinctions. In particular, Goldfine does not teach or suggest that the responses, or portions of the responses, from distinct sensors or from multiple depths can be plotted at the same time to create a single estimation grid.

Zaretsky is also directed towards converting the responses from dielectric sensors into some physical properties. While it does use a model of responses, it does not teach or suggest analyzing estimation grids, much less plotting responses from multiple penetration depths in a single estimation grid.

Neither Goldfine nor Zaretsky, nor their combination teach or suggest plotting responses from multiple penetration depths on the single estimation grid, as recited, for example, in independent Claims 2 and 10. While the winding constructs of Goldfine can incorporate multiple defined spatial wavelengths, as noted by the Examiner, Goldfine does not suggest plotting responses from winding constructs having different spatial wavelengths to form a single property estimation grid. Zaretsky does not supplement this failing in teachings of Goldfine. Therefore, independent Claims 2 and 10 are not obvious in view of the combination of Goldfine and Zaretsky and the rejection should be withdrawn.

Claims 3, 5-9 and 12-16 depend on independent Claim 2 and are not obvious in view of Goldfine and Zaretsky for at least the same reasons as above. New Claims 30, 31 and 32 depend on independent Claims 2 and 10, respectively, and, therefore, are not obvious in view of Goldfine and Zaretsky for at least the same reasons as above.

Claim 4 has been rejected under 35 U.S.C. 103 (a) as being unpatentable over Goldfine in view of Zaretsky and further in view of Snyder (U.S. 5,394,084). This rejection is respectfully traversed and reconsideration is requested.

As discussed above, neither Goldfine nor Zaretsky teach or suggest plotting responses from multiple penetration depths on the same estimation grid. Snyder does not teach or suggest estimation grids at all and, therefore, fails to supplement the teachings of Goldfine and Zaretsky in such as way as to render Claim 4 obvious. Therefore, this rejection should be withdrawn.

Claims 11 and 17 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Goldfine in view of Zaretsky and further in view of Waldman (U.S. 5,223,796). This rejection is respectfully traversed and reconsideration is requested.

The present application is also directed towards varying temperature of the material under test so that sensor response moves along a property grid line. Such temperature variation helps identification of individual properties by taking advantage of the fact that some properties change significantly with temperature (e.g., the electrical conductivity of Fig. 5A) while others may be relatively constant (e.g., the layer thickness or the permittivity of Fig. 5A). This methodology can be used as part of the sensor calibration or during the actual property measurements.

Although Waldman does teach measuring temperature of the material in order to compensate for the measured operating parameters of the material under test, Waldman does not teach or suggest using the temperature to isolate the measurement values associated with individual properties, as recited, for example, in Claims 11 and 32.

Furthermore, Waldman does not supplement the failings of teachings of Goldfine and Zaretsky in such a way as to render Claims 11 and 17 obvious. Therefore, this rejection should be withdrawn. All claims are now believed to be in condition for allowance.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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